
NASA
Light Detection and Ranging (LIDAR)
Digital Elevation Data Products

Solicitation # RFO 13-SSC-O-02-40

Pre-Mission Plan Report
San Andreas Project Area

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Introduction

The pre-mission planning report consists of information about flightlines and flightline planning, estimated weather and operating conditions, and reference maps of the San Andreas project area performed under Solicitation # RFO 13-SSC-O-02-40.

Anticipated Operating Conditions

Weather

TerraPoint anticipates that weather conditions will have the most direct impact on the ability to acquire LIDAR data in the San Andreas project area. February is anticipated to be dryer than March as the annual spring rains seem to be slightly delayed along the coast. At this time the weather seems to be leaning more toward drought conditions. This is often experienced during an El Nino year.

- February 2003

Mendocino and Sonoma Counties

- Daily high temperatures between 50-60° F and nightly low temperatures in the lower 40° F and upper 30° F ranges.
- Winds generally out of the Northeast between 5-10 mph
- Lower than normal amounts of precipitation
- Snow levels above 1000 ft are also anticipated to be lower than normal maintaining a depth of 6-8 inches of snow pack

Sky Conditions	Expected for February 2003
Sunny	16 days
Partly-Cloudy	8 days
Cloudy	4 days
Rain	10% of days
Snow	2% of days

March 2003

Mendocino and Sonoma Counties

- Daily high temperatures in the mid 60° F and warming and nightly low temperatures in the mid 40° F range.
- Winds generally out of the Northeast between 5-10 mph
- Precipitation levels starting to increase as spring rains enter the region, anticipate more rainy days than in February
- Snow levels above 1000 ft are also may increase with precipitation level, however if temperatures continue to rise then snow melt may start to occur

Sky Conditions	Expected for March 2003
Sunny	15 days
Partly-Cloudy	6 days
Cloudy	10 days
Rain	35% of days
Snow	1% of days

Ground Control Points

A series of ground control points are surveyed for use as calibration check points. These points are typically at a calibration site that is flown over at the start and end of every data collection mission. Orthometric, Ellipsoidal, and height above the geoid are all recorded for these calibration points.

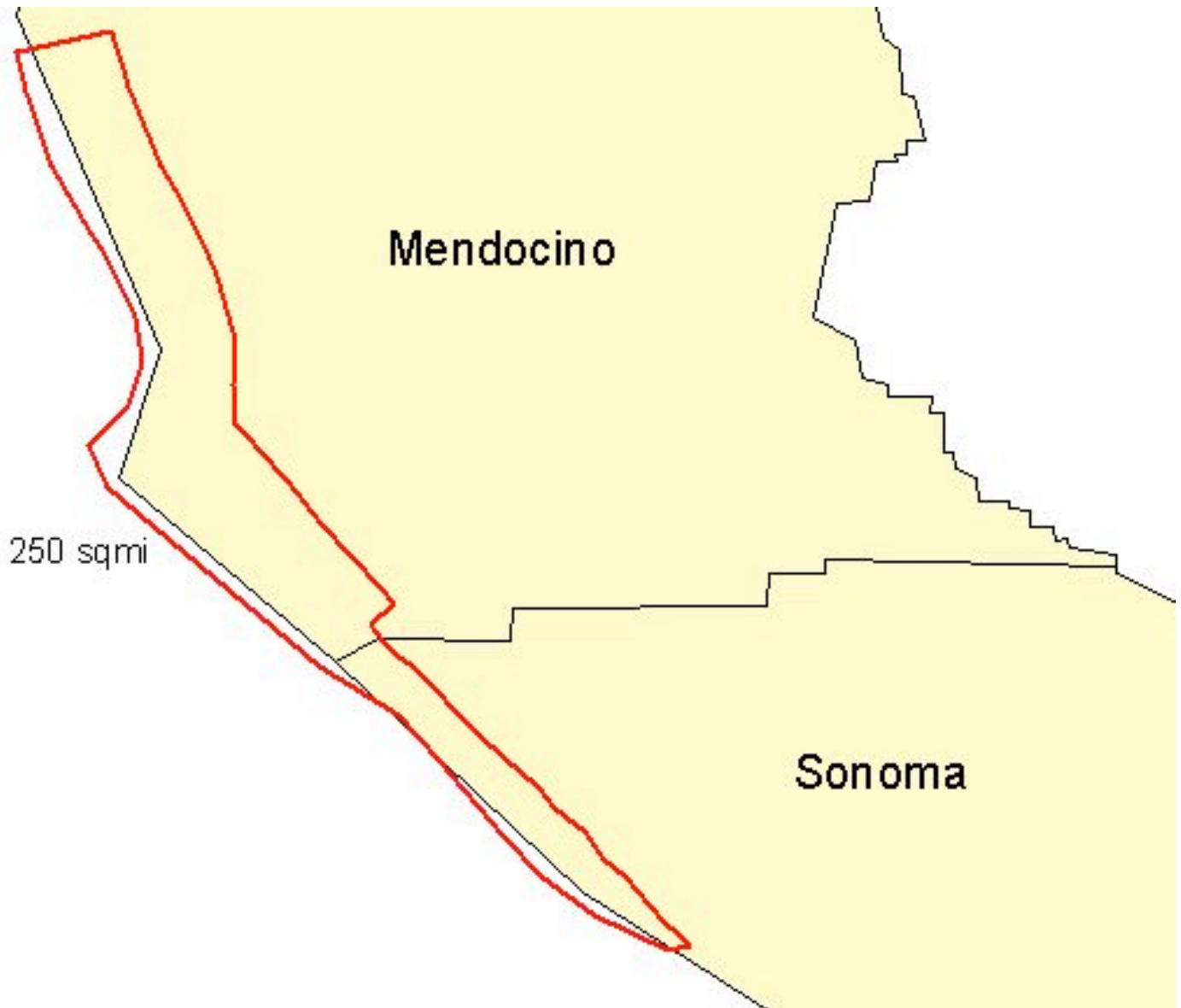
The kinematic GPS acquired with the LIDAR data on each flight will be processed with GPS from the base station installations at this site. Any base stations to be used in missions are operated continuously. The base station in nearest proximity to the flight lines completed during a mission will be used as the Master station for the GPS processing to determine aircraft position.

At the time of this report, no preliminary ground control points have been established. The ground survey crew will arrive at the project site on February 3, 2003 to establish a calibration site and associated ground control points.

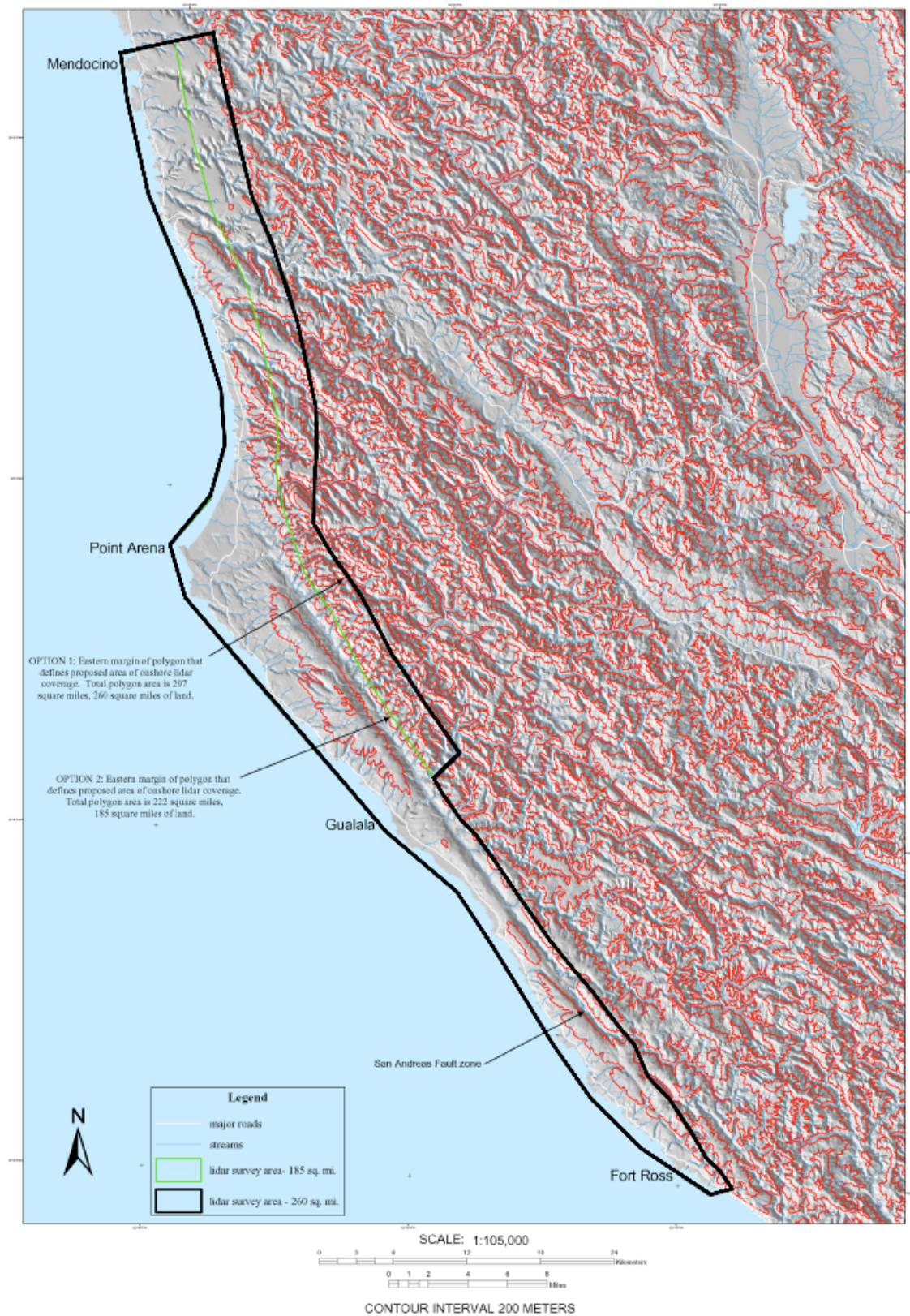
Maps of Study Area

The San Andreas study area is located in the Southwestern part of Mendocino county crossing into the Northwestern part of Sonoma county in California, USA. The study zone runs north to south along the western edge of the Sierra Nevada range from Mendocino to Fort Ross for 260 square miles. The following image shows the study area in relation to Mendocino and Sonoma counties.

San Andreas Study Area



Northern San Andreas Project Area
(image provided by NASA)



Planned Flight Paths

LIDAR data acquisition flight lines have been created for the San Andreas project area. Flight lines and cross flight lines have been created to minimize the impact of steep terrain during data acquisition and to meet data density requirements of an average of at least one first return per square meter and no worse than 0.4 first returns per square meter at the 95th percentile, exclusive of areas of open water.

Flightline Parameters are:

<i>Parameters</i>	Value
Nominal Flying Height (AGL)	3000 ft
Flightline Overlap	58%
Nominal Point Spacing	1.4 m
Flightline Length (average)	28,318 m

A nominal flying height of 3000 ft provides a 594 m swath. The flightlines are spaced at approximately 250 m intervals to ensure double coverage of the entire area in accordance with project specifications. This flightline spacing also supports a nominal point density of 1.21 points per sq m, exceeding the specification of 1 return per sq m.

TerraPoint anticipates having its base of operations in Ukiah, which has the closest municipal airport to the project location. This airport is located at:

Lat: 39° 08' N
Long: 123° 12' W

Remote initialization of GPS base stations will be required due to the excessive distances between the Ukiah airport and the extremities of the project area.

Flightlines San Andreas

